

36. The control system of claim 31, wherein said serial communication line is a bi-directional line.

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37. The control system of claim 31, wherein said serial communication line is an asynchronous four-wire line.

38. The control system of claim 31, wherein said serial communication line is a synchronous five-wire line.--

REMARKS

Reconsideration and allowance of the subject application are respectfully requested. Claims 1-4, 6-8, 11-12, and 16-38 are pending. By this Amendment, claims 5, 9-10, and 13-15 have been cancelled; claims 1-4, 6-8, and 11-12 have been amended; and claims 16-38 have been added. Claims 1, 3, 11, 12, 19, 27, and 31 are in independent form.

Drawings

Figs. 1 and 2 stand objected to for lacking legends indicating only that which is old is illustrated. A legend --Conventional Art-- has been added to both Figs. 1 and 2 to overcome this objection. This legend indicates that this art is not a part of the invention. Contrary to the suggestion made in the Office Action, Figs. 1 and 2 have not been described as prior art because they do not

necessarily satisfy the definition of art under 35 U.S.C. §102 that would make them "Prior Art."

Applicant respectfully requests the Examiner to withdraw this objection to the drawings.

Also, in Fig. 3, inputs to buffer 224 have been changed from L11 and L12 to E11 and E12, respectively. This has support, for e.g., on page 22, lines 7-8.

Applicant respectfully requests the Examiner to accept this change to the drawings.

A Drawing Change Authorization Request has been filed concurrently herewith to address each and every objection to the drawings.

Rejections under 35 U.S.C. § 112, Second Paragraph

Claims 5-10 and 13-15 stand rejected under 35 U.S.C. §112, second paragraph, as being indefinite. This rejection has been rendered moot through cancellation of claims 5, 9-10, and 13-15.

Applicant respectfully requests the Examiner to withdraw this Section 112, second paragraph rejection.

Rejections Under 35 U.S.C. §103

Claims 1-4 and 11-12 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Marcade et al. (U.S. Patent No. 4,646,528) in view of Fowler et al. (U.S. Patent No. 5,616,269). Applicant respectfully traverses this Section 103 rejection.

Independent claims 1 and 3 recite in part " a bi-directional data signal line adapted to transmit data between the display unit and the control unit in a serial manner" (emphasis added). Neither Marcade nor Fowler discloses or suggests at least this claimed feature. More specifically, Marcade is directed toward a device and method to control operations of a refrigerator. In the Office Action, it is asserted that data lines 60 represent connections between the controller 42 and the display unit 62 (see Fig. 3 of Marcade).

Applicant submits that the data lines 60 of Marcade are not equivalent to the data line as claimed in claims 1 and 3. First, Marcade discloses that data lines 60 actually represent a series of outputs (see column 3, lines 64-65). A series of lines cannot be equivalent to a single data line. Second, Applicant notes that data lines 60 carry data in a single direction, namely from the controller 42 to the display unit 62. Thus, data lines 60 are not bi-directional. For at least these reasons, Marcade does not disclose or suggest the above-recited feature of claims 1 and 3.

Fowler fails to correct at least this deficiency of Marcade. More specifically, Fowler is directed toward a control system for a microwave oven having magnetron means, the system being adapted to interconnect a power source to the magnetron means and operating the same. Fowler discloses that the control system is divided into various modules, such as a display control module and a power control module, interconnected by a series of electrical circuit means. Fowler discloses two examples of the electrical circuit means. One is a conglomeration of four wires (see column 6, lines 43-48) and the other

is a conglomeration of nine wires (see column 8, lines 18-26). In both examples, the wires include a clock line, a serial input line, a serial output line, and a handshake line. Both configurations suggest that a synchronous communication is contemplated where an output from one module is connected to an input of another module and vice versa. However, Fowler does not disclose or suggest a single line that is connected to both inputs and outputs of both modules. Therefore, Fowler does not disclose or suggest the above-recited feature of claims 1 and 3.

Because neither Marcade nor Fowler discloses or suggests a bi-directional data line adapted to transmit data between the display unit and the control unit in a serial manner, as claimed in claims 1 and 3, the combination of Marcade and Fowler also fails to disclose or suggest the same feature. For at least these reasons, claims 1 and 3 are not rendered obvious by the combination of Marcade and Fowler.

Claims 2 and 4 depend from independent claims 1 and 3. Therefore, these dependent claims are not rendered obvious by the combination of Marcade and Fowler for at least the reasons stated with respect to claims 1 and 3.

Applicant respectfully requests the Examiner to withdraw this Section 103 rejection of claims 1-4 based on Marcade and Fowler.

Independent claim 11 recites in part "determining whether a right of data transmission is assigned to the external display device or to a control unit"

(emphasis added). Neither Marcade nor Fowler discloses or suggests at least this claimed feature.

More specifically, Marcade discloses that communications occur between the controller 42 and the display 62. However, Applicant notes that Marcade is silent regarding arbitrating which module has the right to send data. Indeed, as disclosed in Marcade, there is no need to arbitrate because the display 62 is purely passive and only receives data from the controller 42. Thus, Marcade does not disclose or suggest at least the above-claimed feature of claim 11.

Fowler fails to correct at least this deficiency of Marcade. More specifically, Fowler discloses that a handshake protocol is used so that the sending module is assured that the receiving module has received the sent data. However, the handshake protocol is not analogous to determining which module has a data transmission right. The handshake protocol is used to enhance reliability of data transmission – it is not used to determine which module has the right to send data. Fowler is silent about the process that determines which module has the right to send data in the first place. Thus, Fowler does not disclose or suggest the above-recited feature of claim 11.

Because neither Marcade nor Fowler discloses or suggests determining whether a right of data transmission is assigned to the external display device or to a control unit, as claimed in claim 11, the combination of Marcade and Fowler also fails to disclose or suggest the same recited feature. Therefore, for at least this reason, claim 11 is not rendered obvious by the combination of Marcade and Fowler.

Independent claim 12 recites in part "checking whether or not a right of data transmission is assigned." It has been shown above that neither Marcade nor Fowler discloses or suggests at least this claimed feature. Therefore, claim 12 is not rendered obvious by the combination of Marcade and Fowler.

Applicant respectfully requests the Examiner to withdraw this Section 103 rejection of claims 11 and 12 based on Marcade and Fowler.

Claims 5-6, 8-10, and 13-15 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Marcade in view of Fowler and in further view of Gaudet et al. (U.S. Patent No. 5,265,431). Claims 5, 9-10, and 13-15 have been canceled rendering this rejection moot with respect to these claims. Regarding the remaining claims, Applicant respectfully traverses this rejection.

Independent claim 3, from which claims 6 and 8 depend, recites in part "a bi-directional data signal line adapted to transmit data between the display unit and the control unit in a serial manner." It has been shown above that neither Marcade nor Fowler discloses or suggests at least this claimed feature.

Gaudet fails to correct at least this deficiency of Marcade and Fowler. More specifically, Gaudet is directed toward a network of cryopumps, each having an electronic regeneration controller and being coupled to a common rough pump. As noted in the Office Action, Gaudet discloses a serial communication taking place in the form of an RS-232 line. Applicant notes, however, that an RS-232 line is another example of a serial communication that connects an output from one device to an input from another device and vice versa. An RS-232 line does not have a single line bi-directional capability.

Gaudet is silent regarding whether any other type of serial communication takes place. Thus, Gaudet does not disclose or suggest a bi-directional data signal line adapted to transmit data between the display unit and the control unit in a serial manner, as claimed in claim 3.

Because Gaudet fails to correct at least this deficiency of Marcade and Fowler, independent claim 3 is not rendered obvious by the combination of Marcade, Fowler, and Gaudet. Therefore, claims 6 and 8 are also not rendered obvious by the combination of Marcade, Fowler, and Gaudet for at least the reasons stated with respect to claim 3.

Applicant respectfully requests the Examiner to withdraw this Section 103 rejection of claims 6 and 8 based on Marcade, Fowler and Gaudet.

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Marcade in view of Fowler and Gaudet and in further view of the conventional art described in the application. Applicant respectfully traverses this Section 103 rejection.

It has been shown above that independent claim 3, from which claim 7 depends, is not rendered obvious by the combination of Marcade, Fowler, and Gaudet since the combination fails to disclose or suggest a bi-directional data line as claimed in claim 3. The conventional art fails to correct at least this deficiency.

Applicant notes that the conventional art only contemplates a parallel communication taking place between the modules. Thus, the conventional art cannot disclose or suggest a bi-directional data line adapted to transmit data

between the display unit and the control unit in a serial manner, as claimed in claim 3. Therefore, claim 3 is not rendered obvious by the combination of Marcade, Fowler, Gaudet, and the conventional art. Thus, it follows that claim 7 is also not rendered obvious by the combination of Marcade, Fowler, Gaudet, and the conventional art for at least the reasons stated with respect to claim 3.

Applicant respectfully requests the Examiner to withdraw this Section 103 rejection of claim 7 based on Marcade, Fowler, Gaudet, and the conventional art.

New Claims

By this Amendment, claims 16-38 have been added. Claim 16, 17, and 18 depend from independent claims 12, 1, and 3, respectively, and these independent claims have been shown to be allowable. Therefore, claims 16, 17, and 18 are also allowable for at least the reasons stated with respect to independent claims 12, 1 and 3.

Independent claim 19 recites in part "determining if said first unit has a data transmission right." It has been shown above that none of the cited references discloses or suggests at least this claimed feature. Therefore, claim 19 is allowable over the cited references.

Claims 20-26 depend from independent claim 19 directly or indirectly. Therefore, these dependent claims are also allowable over the cited references for at least the reasons stated with respect to claim 19.

Independent claim 27 recites in part "determining if said first unit is in a reception mode." Applicant notes that all of the cited references are silent regarding the modes that a particular module may be in at any given moment. Therefore, for at least this reason, claim 27 is not anticipated by any of the cited references and is not rendered obvious by any combination of the cited references.

Claim 28-30 depend from independent claim 27. Therefore, these claims are also allowable over the cited reasons for at least the reasons stated with respect to claim 27.

Independent claim 31 recites in part "said serial communication line being disposed through a hole of a hinge of said door". Applicant notes that all of the cited references are silent regarding the routing of the serial communication line through a hinge of a door. It is true that the conventional art described in the specification does place data lines through a hinge hole. However, Applicant notes that the conventional art does not recognize the problem of a limited space of the hole of a hinge, and thus does not contemplate placing a serial line to solve the problem. For at least this reason, claim 31 is not anticipated by any of the cited references and is not rendered obvious by any combination of the cited references.

Claims 32-38 depend from independent claim 31 directly or indirectly. Therefore, these dependent claims are also not anticipated by any of the cited references and are not rendered obvious by any combination of the cited references for at least the reasons stated with respect to claim 31.

Applicant respectfully requests the Examiner to allow these new claims.

CONCLUSION

For the foregoing reasons, Applicant respectfully requests the Examiner to withdraw all of the objections and rejections.

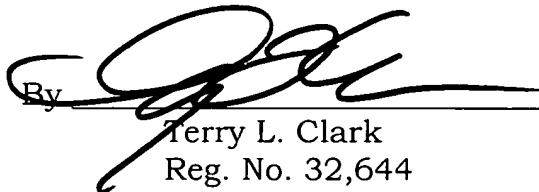
Applicant respectfully petitions under the provisions of 37 CFR § 1.136(a) and § 1.17 for a **one-month** extension of time in which to respond to the Examiner's Office Action. The Extension of Time Fee in the amount of **\$110.00** is attached hereto.

Should there be any outstanding matters which need to be resolved in the present application, the Examiner is respectfully requested to contact Hyung Sohn (Registration No. 44,346) at the telephone number of the undersigned below.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment from or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17; particularly, the extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASH & BIRCH, LLP


By _____
Terry L. Clark
Reg. No. 32,644

P.O. Box 747
Falls Church, VA 22032-0747
(703) 205-8000

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